REMARKS

In the Action, claims 5-7 and 19-24 are rejected. In response, claims 5-7 and 24 are cancelled, and claim 19 is amended to include the subject matter of original claim 24.

The present amendment does not raise new issues after the final rejection. Independent claim 19 is amended to include the subject matter of original claim 24 and to recite the coating speed of at least 1100 m/min as disclosed on page 13, line 12, of the specification.

In view of these amendments and the following comments, reconsideration and allowance are requested.

The Rejections

Claims 5-7 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being supported by the written description in the specification. Without conceding to the correctness of this rejection, claims 5-7 are cancelled to overcome this rejection.

Claims 19-23 are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,197,155 to Wurster et al. As amended, claim 19 includes the subject matter of claim 24 to overcome this rejection.

Claims 5-7 are rejected under 35 U.S.C. § 103(a) as being obvious over Wurster et al. in view of U.S. Patent No. 5,972,167 to Hayasaka et al. and JP 11-050392 and over the combination of Wurster et al. and JP '392. Claims 5-7 are cancelled to obviate this rejection.

Original claim 24 is rejected under 35 U.S.C. § 103(a) as being obvious over Wurster et al. in view of JP '392. Independent claim 19, which is amended to include the subject matter of claim 24, is not obvious over the combination of the cited patents for failing to disclose the specific combination of the method steps as recited in claim 19.

Independent claim 19 as amended is directed to a method of producing coated paper by applying a coating color using a roll coater at a coating weight of at least 7 g/m^2 on each side where the coating color is applied at a coating speed of at least 1100 m/min without misting or boiling. The coating color of the invention contains an adhesive and a small amount of polyvinyl alcohol in an amount of 0.1 to 1.0 parts by weight and a small amount of starch in an amount of less than 2.0 parts by weight. The combination of the cited patents does not render the claimed invention obvious to one of ordinary skill in the art.

Applicants have discovered that the transferability of the coating color to the base paper according to the claimed method is dramatically improved when using the coating color of the present invention. The resulting coated paper exhibits excellent sheet gloss and ink density. The claimed process provides good coating and runability at high speeds without blistering or boiling.

Wurster et al. is cited for disclosing a composition that allegedly corresponds to the claimed coating color. Wurster et al. fails to disclose a coating composition that can be applied using the claimed roller coater without misting or boiling. As noted in the Action, Wurster et al. does not disclose the transfer roll coater, the peripheral speed of the inner and outer rollers, or the application of the composition without misting or boiling. Wurster et al. is specifically directed to a lightweight coated paper. The coating composition of Wurster et al. is a lightweight coating containing small amounts of a binder in relation to the coating pigment. As disclosed in column 2, lines 63 and 64 of Wurster et al., the binder is in the range of 6-12%. Column 3, lines 12-13, specifically disclose the binder content of the coating should not exceed 18% by weight in relation to the pigment.

The composition of Wurster et al. specifically requires the use of a coating apparatus that operates at lower speeds than the claimed invention to apply the lightweight coating.

The Examples disclosed in Wurster et al. include a jet flow such as a Massey coater or a scraper such as an inverted blade. See, column 4, lines 23-28.

Claim 19 specifically recites the transfer roll coater including an inner roll, an outer roll, and an applicator roll. The claimed transfer roll coater is not a Massey coater or a KCM coater. A Massey coater and a KCM coater do not have an inner roll, an outer roll, and an applicator roll. Furthermore, a Massey coater and a KCM coater are not capable of applying a coating composition at a coating speed of 1100 m/min as in claim 19. As disclosed on page 13, lines 9-12 of the present specification, the coating color of the present invention can be applied at a coating speed of 1100 m/min or more, and preferably at 1100 m/min or more without the problems of misting and boiling associated with the coating colors of the prior processes. As disclosed in the English translation of the Japan TAPPI Journal attached to Applicants' April 13, 2007 Amendment, a Massey coater has a maximum speed of about 600 m/min and a KCM roll coater has a maximum speed of about 600 m/min. See, Table 1 of the English translation. Thus, the claimed roll coater is distinguishable from the Massey coater disclosed in Wurster et al. and the KCM coater.

The Action relies on JP '392 for disclosing a gate roll coater and for the position that it would have been obvious to modify the method of Wurster et al. to use a gate roll coater. Applicants respectfully submit that the art of record as a whole does not suggest to one of ordinary skill in the art the proposed combination. JP '392 is expressly directed to a coating composition containing 15-35 parts by weight of a starch or starch derivative. Thus, the amount of starch and the composition of JP '392 is clearly outside the range required by Wurster et al. and the claimed invention.

JP '392 is specifically directed to a coated paper using a gate roll coater and requires a specific coating composition to enable the process to be carried out without adverse effects. JP '392 specifically discloses in paragraph 0005 that the typical problems arising with the

application of coating compositions using a gate roll coater include exfoliation which produces a non-uniform pattern, gum rise, where the application liquid congeals and adheres to the roller surface, misting which produces a fog and disperses the composition at the nip outlet, and boiling resulting in the formation of bubbles. Thus, JP '392 specifically discloses the problems associated with the use of a gate roll coater and provides a specific solution to overcome these problems.

To overcome the disadvantages of the use of a gate roll coater, JP '392 specifically requires the application liquid to contain 15-35% by weight of a starch or starch derivative as the adhesive component. See, for example, paragraph 0008. The coating composition of JP '392 having a starch content of 15-35 parts by weight is indicated as being essential for the coating process of JP '392.

Wurster et al. as noted in the Action discloses a binder that can contain 0 to 10% by weight starch. This amount is clearly well below the minimum required by JP '392. Wurster et al. avoids the problems of misting and boiling by using a slow coating process such as the use of a coating blade or a Massey coater. Based on the specific teachings of JP '392, one skilled in the art would expect the coating composition of Wurster et al. to exhibit significant misting and boiling since the starch content is well below the minimum indicated by JP '392 as being essential to prevent misting and boiling. Accordingly, one skilled in the art would not have been motivated to use the roll coater of JP '392 using the composition and method of Wurster et al.

As disclosed on page 10, lines 2-5 of the present specification, coated papers containing more than 2 parts by weight of starches are not suitable for web offset printing because of the high resistance to air permeation and low blister resistance. When the coating weight per side is 7 g/m^2 or higher, the air permeation and blister resistance are detrimental where the paper is treated in a super calender or soft nip calender or the like after coating.

The claimed invention is specifically directed to a method of applying a coating color at a coating rate of at least 7 g/m^2 per side using a roll coater having an inner roll, an outer roll, and an applicator roll applied at a coating speed of at least 1100 m/min and having a peripheral speed of the inner roll and the outer roll of 50 to 95% without misting or boiling. The ability to apply the coating color of the invention without misting or boiling at the claimed coating speed using the claimed roller is an unexpected advantage that would not have been predictable or expected by one of ordinary skill in the art based on the teachings of Wurster et al. and JP '392.

The advantages of applying the claimed coating color at the coating speed without misting or boiling are attained by the coating color having an adhesive in an amount of 5 to 50 parts by weight, polyvinyl alcohol in an amount of 0.1 to 1.0 parts by weight, and starch in an amount of less than 2.0 parts by weight. As noted above, JP '392 specifically teaches that a coating composition containing less than 15 parts by weight starch is unacceptable for a roll coater operating at high speeds due to the significant amount of misting, boiling, exfoliation and gum rise. Accordingly, the advantages of the claimed invention would not have been reasonably expected by one of ordinary skill in the art based on the cited patents.

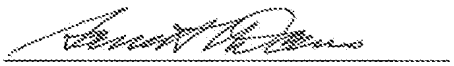
In view of the above comments, it would not have been obvious to one skilled in the art to apply the claimed coating color containing less than 2.0 parts by weight starch and 0.1 to 1.0 parts by weight polyvinyl alcohol using a roll coater having an inner roll, an outer roll and an applicator roll at a coating speed of 1100 m/min as in claim 19. Accordingly, claim 19 is allowable over the art of record.

Claims 20-23 are also allowable as depending from an allowable base claim and for reciting additional features of the invention. The art of record does not suggest the coating color containing an adhesive in an amount of 18 parts by weight or less as in claim 20, the starch being included as an adhesive as in claim 21, the specifically defined adhesives of

claim 22, or the coating color having a solids content of 40 to 70% by weight as in claim 23, in combination with the method steps of claim 19. Accordingly, these claims are submitted as being allowable over the art of record.

In view of these amendments and the above comments, the claims are submitted as being allowable over the combination of Wurster et al. and JP '392. Accordingly, reconsideration and allowance are requested.

Respectfully submitted,



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